Part Three:

APPENDICES

Appendix 1

Data Sources

Demography

Texas

Center for Health Statistics. Health Demographics and Forecasting. Texas Department of Health. Texas State Data Center and Office of the State Demographer. Department of Rural Sociology. Texas A & M University System. *Population data.*

US

U.S. Census Bureau. Department of Commerce. *Population data.*

Mortality

Texas

Texas Department of Health. Bureau of Vital Statistics, Statistical Services Division. *Total deaths, infant mortality, motor vehicle crash deaths, suicide, homicide, lung cancer deaths, female breast cancer deaths, cardiovascular disease deaths, heart disease deaths, and stroke deaths.*

United States

Centers for Disease Control and Prevention (CDC) Wonder Compressed Mortality, http://wonder.cdc.gov. *Total deaths, infant mortality, motor vehicle crash deaths, suicide, homicide, lung cancer deaths, female breast cancer deaths, cardiovascular disease deaths, heart disease deaths, and stroke deaths.*

Morbidity

Texas

Texas Department of Health. Associateship for Disease Control and Prevention. Immunization Division. *Measles incidence*; Bureau of Communicable Disease. Tuberculosis Elimination Division. *Tuberculosis incidence*; Bureau of HIV and STD Prevention. HIV/STD Epidemiology Division. *Primary/secondary syphilis incidence.*

United States

Division of STD Prevention. 2000. *Sexually Transmitted Disease Surveillance, 1999*. Department of Health and Human Services. Atlanta, Georgia: Centers for Disease Control and Prevention (CDC). *Primary/secondary syphilis: 1990-1999 incidence.*

National Center for Health Statistics (NCHS). 1996. *Health, United States, 1995.* Hyattsville, Maryland: Public Health Service. *Measles and Tuberculosis: 1990 through 1994 incidence.*

NCHS. 1997. *Health, United States, 1996-97 and Injury Chartbook.* Hyattsville, Maryland: Public Health Service. *Measles and Tuberculosis: 1994 through 1995 incidence.*

Eberhardt MS, Ingram DD, Makuc DM, et al. 2001. *Urban and Rural Chartbook. Health, United States, 2001.* Hyattsville, Maryland: NCHS. *Measles and Tuberculosis: 1996 through 1999 incidence.*

Natality

Texas

Texas Department of Health. Bureau of Vital Statistics. Statistical Services Division. *Live births, low birth weight, mothers aged 10 to 17, and prenatal care.*

United States

National Center for Health Statistics (NCHS). 1995. *Health, United States, 1994.* Hyattsville, Maryland: Public Health Service. *Low birth weight and prenatal care: 1990 through 1992 data.*

NCHS. 1998. *Health, United States, 1998 with Socioeconomic Status and Health Chartbook.* Hyattsville, Maryland: Public Health Service *Mothers aged 10 to 17: 1990 through 1996 data.*

Eberhardt MS, Ingram DD, Makuc DM, et al. 2001. *Urban and Rural Chartbook. Health, United States, 2001.* Hyattsville, Maryland: NCHS. *Low birth weight, mothers aged 10 to 17, and prenatal care: 1990, 1993 through 1999 data.*

Appendix 1

Data Sources (continued)

Socioeconomic

Texas

Center for Health Statistics. Texas Department of Health: state and county poverty rate estimates for related children under age 18 by race/ethnicity, based on estimates for 1999, published in the 2000 U.S. Census. *Children 17 and younger living in poverty.*

Texas Workforce Commission. Texas Labor Market Information. Unemployment Rates and Labor Force. 2000 Annual Average. *Statewide and County unemployment data.*

Texas Department of Human Services. 2000 Annual Report. Temporary Assistance for Needy Families (TANF) Program. *Food Stamp and TANF Information by County (average monthly), Fiscal Year 2000.*

US

U.S. Bureau of the Census, Census 2000: Summary File 3 (Tables PCT 76 H, PCT 76 I and PCT 76 B) and Census 2000 Redistricting Data Summary File. *Children 17 and younger living in poverty.*

U. S. Department of Labor. Bureau of Labor Statistics. Labor Force Statistics from the Current Population Survey. 2000. *Unemployment rates - Civilian labor force.*

Food and Nutrition Service. U. S. Department of Agriculture, 2000. *Food stamp participants, (average monthly).*

Temporary Assistance for Needy Families (TANF) Program, 2000. Administration for Children and Families. U.S. Department of Health and Human Services. *Characteristics and Financial Circumstances of TANF Recipients, Fiscal Year 2000.*

Texas and US

Local Area Personal Income. Bureau of Economic Analysis (BEA). U.S. Department of Commerce. Table "CA1-3 Per capita personal income 2", 2000. *Per capita personal income.*

U.S. Census Bureau. 2000 Decennial Census. Summary Tape File 1. *Own children living in female-headed households; and own children in single-parent households.*

U.S. Census Bureau. 2000 Decennial Census. Summary Tape File 3. *Persons receiving public assistance.*

Risk Factor Information

Texas

Center for Health Statistics. 2002. *Behavioral Risk Factor Surveillance System Data*. Austin, Texas: Texas Department of Health, 1999-2001.

US

Centers for Disease Control and Prevention (CDC). 2002. *Behaviorial Risk Factor System Data*. Atlanta, Georgia: U.S. Department of Health and Human Services, 1999-2001.

Air Quality

Texas

Texas Natural Resources Conservation Commission (TNRCC). 2000. *Counties listed as being in compliance with National Ambient Air Quality Standards and designated as Nonattainment Areas by the United States Environmental Protection Agency.*

Appendix 2

International Classification of Diseases (ICD)

Causes of death are classified using the International Classification of Diseases Ninth Revision (ICD-9) to code deaths prior to 1999 and the Tenth Revision (ICD-10) to code deaths from 1999 forward. The coding scheme adapted for the Tenth Revision has changed significantly from prior versions of the ICD. ICD-10 is more detailed than ICD-9 with about 3,000 more categories. ICD-10 uses alphanumeric codes compared to numeric codes in ICD-9. Additions and modifications were made to the chapters in ICD-10. Classification and rule changes for selecting underlying cause of death can have some considerable impact on some of the major causes of death in the United States. However, the impact of these changes on most statistics shown in this report is minimal. One difference occurs with breast cancer death coding, whereby ICD-9 implementation differentiates male and female cancers and the ICD-10 system combines those cancers into a single category.

Motor vehicle mortality data are not reported for 1999 for Texas regions or the state. Revisions to the rules for allocating the ICD-10 codes were implemented for the U.S. in 1999, but not for Texas. The motor vehicle mortality data are coded consistently for 2000, and are reported here for Texas, together with the revised comparability ratio. United States data for 2000 are not yet available.

A crosswalk table showing the ICD-9 and ICD-10 codes used for the Texas Health Status Indicators, as well as a comparability ratio, derived from a study that classified 1996 U.S. deaths using both coding rules is included to distinguish differences between the two systems. Comparability ratios are calculated as the number of deaths from a specific cause of death using the ICD-10 coding system divided by the number of deaths from that same specific cause of death under ICD-9. A comparability ratio of 1.0 indicates that the same numbers of deaths were assigned to a particular cause of death under both ICD-9 and ICD-10 coding rules. A comparability ratio less than 1.0 means that fewer deaths were classified to a cause of death under ICD-10 compared with the same cause of death classification under ICD-9. A comparability ratio of greater than 1.0 shows more deaths being classified to a specific cause of death under ICD-10 than under ICD-9.

The ICD-9 and ICD-10 codes used to define causes of deaths are as follows:

Cause of Death	ICD-9 Codes	ICD-10 Codes	Comparability Ratio
Total Deaths	All ICD-9 codes	All ICD-10 codes	
Motor Vehicle Crash Deaths	E810-E825	V02-V04, V09.0, V09.2, V12-V14, V19.0-V19.2, V19.4-V19.6, V20-V79, V80.3-V80.5, V81.0-V81.1, V82.0-V82.1,V83-V86, V87.0-V87.8, V88.0-V88.8, V89.0, V89.2	0.9754
Suicide	E950-E959	X60-X84, Y87.0	0.9962
Homicide	E960-E969	X85-Y09, Y87.1	0.9983
Lung Cancer Deaths	162	C33-C34	0.9837
Female Breast Cancer Deaths	174	C50 (includes male cancers)	1.0056
Cardiovascular Disease Deaths	390-448	I00-I78	0.9981
Heart Disease Deaths	390-398,402,404-429	I00-I09, I11, I13, I20-I51	0.9858
Stroke Deaths	430-438	I60-I69	1.0588

Morbidity coding has not changed and continues to be based on the International Classification of Diseases Ninth Revision-Clinical Modifications (ICD-9-CM).

Appendix 3
Glossary

Adjusted rate: A rate that has taken into account influences on a crude rate, such as differences in age composition of the population.

Age-specific rate: Rate obtained for specific age groups (for example, age-specific fertility rate, death rate, marriage rate, illiteracy rate, school enrollment rate, etc).

AIDS: Acquired Immune Deficiency Syndrome caused by the Human Immunodeficiency Virus (HIV).

Birth weight: The weight of an infant at delivery, recorded in pounds and ounces or in grams.

Cause of death: Any condition which leads to or contributes to death and is classifiable according to the International Classification of Diseases (ICD-9 and 10 Revisions).

Childhood poverty: Childhood poverty data for 1999 are those reported in the U.S. 2000 Census, and apply to related children living in families. The data may not be directly comparable with estimates for previous years that were derived from the Small Area Income and Poverty Estimates (SAIPE), published by the Census Bureau for intercensal years.

Crude rate: The rate of any demographic or vital event that is based on an entire population.

Demography: The study of populations including their size, age-sex composition, distribution, density, growth, natality, mortality, nuptiality, migration, and any other characteristics which may affect these factors.

Ethnicity: The classification of a population that shares common characteristics, such as, religion, traditions, culture, language, and tribal or national origin.

External cause of death: Death caused by Accidents and Adverse Effects. (See Appendix 2, International Classification of Diseases).

Female breast cancer death rate: The number of females who died of breast cancer per 100,000 of the female population. (See Appendix 2, International Classification of Diseases).

Homicide: Death due to injury purposefully inflicted by other individuals. (See Appendix 2, International Classification of Diseases). This health status indicator does not include death by legal intervention.

ICD-9: The International Classification of Diseases. The ninth revision aids the international comparability of collected and classified cause-of-death statistics. The single selected cause of death is the underlying cause of death. The other reported causes are the nonunderlying causes of death. The ninth revision was used from January 1, 1979 through December 31, 1998.

ICD-10: The International Classification of Diseases. The tenth revision is a more detailed system than ICD-9 for classifying diseases and injuries developed by the World Health Organization and is used worldwide to improve comparability of cause-of-death statistics reported from different countries. The tenth revision has been in use since January 1, 1999.

Infant: An individual less than one year of age.

Infant death: Death of an individual less than one year of age. Infant deaths are further classified as neonatal deaths and postneonatal deaths.

Live birth: The complete expulsion or extraction from its mother of a product of conception, regardless of the duration of the pregnancy, which after expulsion shows any vital signs (heart beat, voluntary breathing, umbilical cord pulsation, or voluntary muscle movement).

Low birth weight: A birth weight less than 2,500 grams or less than 5 pounds, 9 ounces.

Malignant neoplasm: A tumor having the properties of invasion and metastasis.

Morbidity: Refers to the occurrence of diseases in a population.

Appendix 3

Glossary (continued)

Mortality: Death as a component of population change.

Natality: Birth as a component of population change.

Population: The total of all individuals in a given area.

Proportion: A portion of a population in relation to another portion of the population or to the population as a whole. Proportions are a special type of ratio in which the denominator always includes the numerator. (See also ratio.)

Race: A geographical population of humankind that possesses inherited distinctive physical characteristics that distinguish it from other populations.

Rate: The frequency of a demographic event in a specified period of time divided by the population at risk of the event.

Ratio: The relation of one population subgroup to another subgroup, or to the whole population. The denominator of a ratio may or may not include the numerator. If the denominator includes the numerator, it is a special type of ratio known as a proportion. (See also proportion.)

Residence: The geographic area of the usual place of abode.

Residence data: Data compiled by the usual place of residence without regard to the geographic place where the event occurred. For births and fetal deaths, the mother's usual residence is used as the place of residence.

Sedentary lifestyle: This risk factor relates to a person who has not participated in any physical activities in the past 30 days.

Self-identification: A method of race/ethnicity classification. This classification is derived from information provided by the parents for a birth certificate or by the informant who provided information for a death certificate.

Total death rate: The total number of persons who were classified under all causes of death per 100,000 of the total population count for a particular year and area. (See Appendix 2, International Classification of Diseases).

Underlying cause of death: The disease or injury which initiated the train of morbid events leading directly to death, or the circumstances of the accident or violence which produced the fatal injury.

Work-related injury death rate: The total number of persons who died as a result of a work-related injury per 100,000 of the total population 16 years and older. Because work-related injury deaths do not include persons under 16 years of age, work-related death rates are not usually age-adjusted, but are reported as an age specific death rate (number of work related deaths to individuals 16 and older/population of individuals 16 and older * 100,000). (See Appendix 2, International Classification of Diseases).

Appendix 4

Race/Ethnicity Computation for Texas Birth and Death Events

Race and **ethnicity** are two separate items of information collected on all birth and death certificates. Race information is provided by the parents for a birth certificate or by the informant who provided information for a death certificate.

There is no question concerning the race or ethnicity of the infant on the Texas birth certificate. The questions on race and Hispanic origin on the Texas birth certificate apply to the mother and the father. Each parent is asked to provide his or her racial and ethnic identity and the questions are answered as the parent desires. Self-identification of parental race and ethnicity is the guiding principle and stated policy of the Bureau of Vital Statistics. For statistical reporting, births are tabulated by the self-stated race and Hispanic origin status of the mother.

Race and Hispanic origin status of the decedent, as reported on the Texas death certificate, is provided by the informant, usually a family member. The decedent's race or ethnicity may or may not be the same race/ethnicity reported on the decedent's birth certificate.

The questions on race and Hispanic origin are on the Texas birth and death certificates solely for the purpose of developing aggregate public health statistics for constituent groups of the Texas population.

The following chart explains how the Texas Department of Health, Bureau of Vital Statistics, classifies individuals by race/ethnicity based on their self-reported race and Hispanic origin. In this report, indicators for the race/ethnicity category "other/unknown" are included in the data for "white".

If **Race** is Reported as:	And **Hispanic Origin** is Reported as:	Then **Race/Ethnicity** is Computed as:
White	Non-Hispanic Not Classifiable	White
African-American	Any Value	African-American
Other White North American Indian Central or South American Indian Not Classifiable	Mexican Puerto Rican Cuban Central or South American Other or Unknown Hispanic Origin	Hispanic
Other North American Indian Central or South American Indian Not Classifiable	Non-Hispanic Not Classifiable	Other/Unknown
Chinese Japanese Hawaiian Filipino Asian Indian Korean Samoan Vietnamese Guamanian Other Asian	Any Value	Other/Unknown

Reprinted courtesy of Texas Department of Health, Bureau of Vital Statistics, Statistical Services Division.

Appendix 5

Age-Adjusted Death Rates

The crude death rate gives a general estimate of mortality in a population. However, it is unable to provide a completely accurate picture of the true nature of mortality in a population since the rate does not take into consideration differences of population composition. For example, two populations, with widely divergent crude mortality rates, may in fact have very similar patterns of mortality. A developing population with a low crude mortality rate may simply have a very young population, while an industrialized population with a higher crude mortality rate may be composed of more older individuals and have a larger number of adults dying.

The need for age adjustment becomes particularly important when cause-specific mortality is of interest. Unadjusted rates for chronic diseases (cardiovascular diseases, cancers, or chronic lower respiratory diseases) may appear to be higher for older populations when compared to a younger population. With age-adjustment those differences may be reduced or even reversed. A mechanism for adjusting differences in the age structure is needed to determine if there really are mortality differences between two populations.

The method typically used to adjust for differences between populations is direct standardization. Direct standardization divides a population into smaller age groups, estimates mortality rates for each group, and applies these rates to a standard population. Typically, ten year age groups adequately provide accurate age-specific mortality rates. The age-specific rates observed in the population under study are multiplied by the number of people in the specified age group in the standard population. From the sum of those estimates, a single comparable measure of mortality is obtained.

By applying age-specific mortality rates to a standard population, direct standardization controls for differences in population composition. Mortality trends can be more accurately compared along geographic, temporal, or race/ethnicity lines, etc. In short, standardization lets us look at what the death rate would be in one population if that population had the same age structure as the standard population. Beginning with 1999 events, the United States year 2000 population is used as the standard for age-adjusting.

An example of how age-adjusted death rates are calculated is given below:

Example of Age-Adjusted Death Rate Calculations

(Based on 1999 data for Texas)

(A)	(B)	(C)	(D) = (C / B) * 100,000	(E)	(F) = (D*E) / 100,000
AGE GROUP	**TEXAS POPULATION** EST. 1999	**TEXAS RESIDENT** DEATHS	**TEXAS AGE-SPECIFIC** DEATH RATES **PER 100,000**	**US POP STANDARD** MILLION	**EXPECTED DEATHS** STD. **POP**
Less than 5	1,618,667	2,617	161.7	69,135	112
5-14	3,060,172	689	225	145,565	33
" "	" "	" "	" "	" "	" "
" "	" "	" "	" "	" "	" "
" "	" "	" "	" "	" "	" "
75+	892,769	76,287	8,545.0	60,350	5,157
TOTAL	19,995,428	146,649		1,000,000	9,062

AGE-ADJUSTED DEATH RATE = (F)/10 ..... **906.2 per 100,000 population**

Divide by 10 because the standard population has 1,000,000 people and we want to present our rate per 100,000.

Reprinted courtesy of Texas Department of Health, Bureau of Vital Statistics, Statistical Services Division.

Appendix 6

Air Quality Criteria for Nonattainment Areas

The Texas Commission on Environmental Quality (TCEQ), formerly the Texas Natural Resource Conservation Commission (TNRCC), is responsible for maintaining compliance with federal air quality standards as promulgated by the Environmental Protection Agency (EPA). To accomplish this regulatory function, TNRCC operates and maintains 120 air quality monitors across Texas to evaluate the quality and condition of Texas air.[1] Most of these monitors have been placed in major urban areas for the purpose of evaluating six "criteria" pollutants: ozone, carbon monoxide, sulfur dioxide, nitrogen dioxide, lead, and particulate matter (PM) of 10 microns or smaller. Revised standards for ozone and PM-2.5 microns or smaller were promulgated by the EPA in July 1997. However, these standards are awaiting legal review and have not yet been implemented.

Exposure to ozone can cause chest pain, coughing, nausea, and pulmonary congestion for asthmatics.[2] Even at low levels, exposure to ozone for as little as six to seven hours, combined with moderate exercise, can impair the lung function of healthy adults and children. Ozone is the most pervasive of the six criteria pollutants. It is not emitted directly into the air. Rather, it is created through the chemical interaction of nitrogen oxides (NOx) and volatile organic compounds (VOC) with sunlight. The main sources for these compounds include motor vehicles, boilers, smelters, and animal waste operations. The current standards specify no more than 0.12 parts per million (PPM) for more than three days over a three-year period.

Exposure to high concentrations of sulfur dioxide (SO_2) has numerous adverse health effects which include difficulty breathing, pulmonary immunological impairment, and increased cardiovascular problems.[2] Sulfur oxides form when fossil fuels (primarily coal and oil from metal smelting and industrial production) are burned. The standard for this gas is no more than 0.14 ppm in a 24-hour period once a year and an average 0.03 ppm annual concentration.

Nitrogen dioxide (NO_2) emissions may cause lowered respiratory resistance to infections on a short-term basis.[2] Continued exposure may produce acute respiratory illness in children. Nitrogen dioxide and its related family of gases (nitrogen oxides) form as fuel burns at high temperatures. The most common sources of these gases are from vehicles, electric utilities, and industrial boilers. The public health standard for this gas is no more than an average 0.053 ppm annual concentration.

Carbon monoxide (CO), which is produced when carbon in fossil fuels is incompletely burned, blocks the delivery of oxygen to organs and tissues.[2] This can be especially harmful for individuals suffering from cardiovascular problems. Because of the oxygen deprivation, continued exposure to elevated levels of CO is associated with physical impairment, poor mental acuity, and difficulty in performing tasks. Vehicular exhaust produces 60 percent of CO emissions nationwide and up to 95 percent in urban areas. As of 1995, the EPA's national air quality standard for CO was a maximum of 9 ppm during one eight-hour averaged monitoring period annually.

Lead (Pb) has a particularly devastating health effect on the neurological development and energy transfer processes in children.[2] Inhaled and ingested lead accumulates in the blood, bone, and soft tissue. Excessive exposure can cause anemia, kidney disease, reproductive disorders, seizures, mental retardation, behavioral disorders, and learning disorders. Much of this damage is irreversible. Major sources of this pollutant are smelters and battery plants. The national maximum standard for lead is 1.5 micrograms per cubic meter as measured for an annual quarterly average concentration.

Particulate matter (PM-10) includes solid and liquid airborne particles emitted directly from mobile sources (such as diesel trucks) or stationary sources (such as wood burning stoves and power plants).[2] Particles with a diameter of 10 micrometers or less can penetrate far into the lung and cause tissue damage and impair breathing function. Premature death may occur for individuals with increased sensitivity, such as the elderly, children, and individuals with asthma, chronic lung disease, or influenza. The national maximum standard for particulate matter of 10 micron or smaller is 150 micrograms per cubic meter per 24-hour average concentration using three-year 99th percentile readings and a maximum of 50 micrograms per cubic meter annually.

Notes

[1] Texas Natural Resource Conservation Commission (TNRCC). 1998. *Strategic Plan for Fiscal Years 1999-2003.* Volume 1. SFR - 35A/98. Austin, TX: TNRCC. p 9-17.

[2] Office of Air and Radiation. 1996. *1995 National Air Quality: Status and Trends*. Environmental Protection Agency (EPA). http://www.epa.gov/oar/aqtrnd95/.